

Notice of Allowability

Application No.

09/904,039

Examiner

Young J. Kim

Applicant(s)

DONG ET AL.

Art Unit

1637

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the Amendment received on August 4, 2006.
2. ☒ The allowed claim(s) is/are 39-47,49-53,57,58 and 174-177.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

Young J. Kim
Primary Examiner
Art Unit: 1637

4-26-07

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Ms. Sandra Wells on April 25, 2007.

The application has been amended as follows:

In the Claims:

Claim 48 has been canceled.

39. (Currently Amended) A method of analyzing a first nucleic acid sample comprising:

- (a) submitting a computer query to an electronic sequence database to identify the sequence and size of the fragments that are predicted to result from digestion of said first nucleic acid sample with at least one selected restriction enzyme;
- (b) selecting a subset of said fragments that are within a selected size range from said computer query;
- (c) identifying known polymorphisms present on said fragments in said subset of fragments;
- (d) providing a nucleic acid array comprising a plurality of probes which are complementary to said polymorphisms identified in said subsets of fragments;
- (e) providing said first nucleic acid sample;

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(f) reproducibly reducing the complexity of said first nucleic acid sample to produce a second nucleic acid sample, wherein said reducing complexity step comprises:

(i) fragmenting said first nucleic acid sample with said at least one selected restriction enzyme of step (a); and

(ii) ligating adaptor sequences to said fragments of step (f)(i), and amplifying at least some of said fragments ligated with said adaptor sequences using a selected amplification method, thereby producing a second nucleic acid sample;

(g) hybridizing said second nucleic acid sample to the nucleic acid of array of (d); and

(h) analyzing a hybridization pattern resulting from said hybridizing step of (g).

Reasons for Allowance

The following is an examiner's statement of reasons for allowance:

With regard to claims 39-47 and 50-53, the prior art neither teaches or suggests for a method of generating a nucleic acid array, wherein the probes of said nucleic acid array is produced by the steps recited in claim 39 (a)-(d), which allows for the production of nucleic acid arrays which are tailored for a particular subset of targets, allowing for the reduction of complexity in the nucleic acid being assayed for as well as reducing the number of probes required for such assay.

Claims 57, 58, and 174-177 are free of prior art as the prior do not teach or suggest for a method of mixing a probe-bead complex to isolate a polymorphic sequence with a target nucleic acid, followed by their exposure to DNA nuclease to digest the unbound nucleic acid (i.e., single stranded nucleic acid and overhangs), followed by the ligation of the remaining double-stranded

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molecules with adapters comprising a restriction enzyme recognition site, followed by the digestion with a restriction enzyme which separates the beads from the adapter ligated double stranded nucleic acids.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Inquiries


Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Young J. Kim whose telephone number is (571) 272-0785. The Examiner is on flex-time schedule and can best be reached from 8:30 a.m. to 4:30 p.m (M-W and F). The Examiner can also be reached via e-mail to Young.Kim@uspto.gov. However, the office cannot guarantee security through the e-mail system nor should official papers be transmitted through this route.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Dr. Gary Benzion, can be reached at (571) 272-0782.

Papers related to this application may be submitted to Art Unit 1637 by facsimile transmission. The faxing of such papers must conform with the notice published in the Official Gazette, 1156 OG 61 (November 16, 1993) and 1157 OG 94 (December 28, 1993) (see 37 CFR 1.6(d)). NOTE: If applicant does submit a paper by FAX, the original copy should be retained by applicant or applicant's representative. NO DUPLICATE COPIES SHOULD BE SUBMITTED, so as to avoid the processing of duplicate papers in the Office. All official documents must be sent to the Official Tech Center Fax number: (571) 273-8300. For Unofficial documents, faxes can be

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sent directly to the Examiner at (571) 273-0785. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (571) 272-1600.


Young J. Kim
Primary Examiner
Art Unit 1637
4/25/2007

**YOUNG J. KIM
PRIMARY EXAMINER**

YJK